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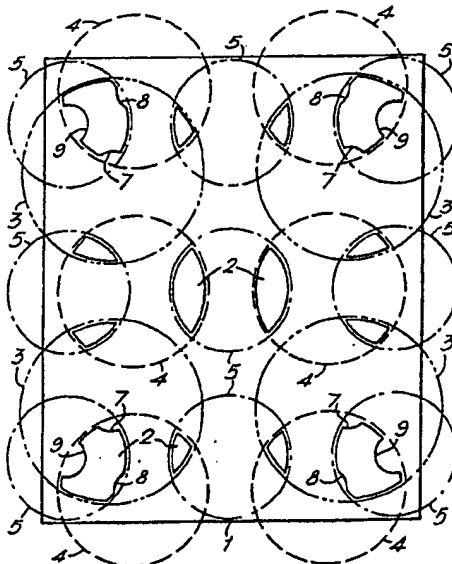
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(54) Article location on a pallet

(57) A pallet for supporting and  
 laterally locating arrays of upright  
 containers, particularly beer

containers, of different sizes,  
 comprising a flat body 1 with  
 upstanding portions 2 arranged to  
 locate, for example, either four barrels  
 3 or six kilderkins 4 or nine firkins 5.

FIG.4.



The drawings originally filed  
 were informal and the  
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 from a later filed formal copy.

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FIG.2.



FIG.1.

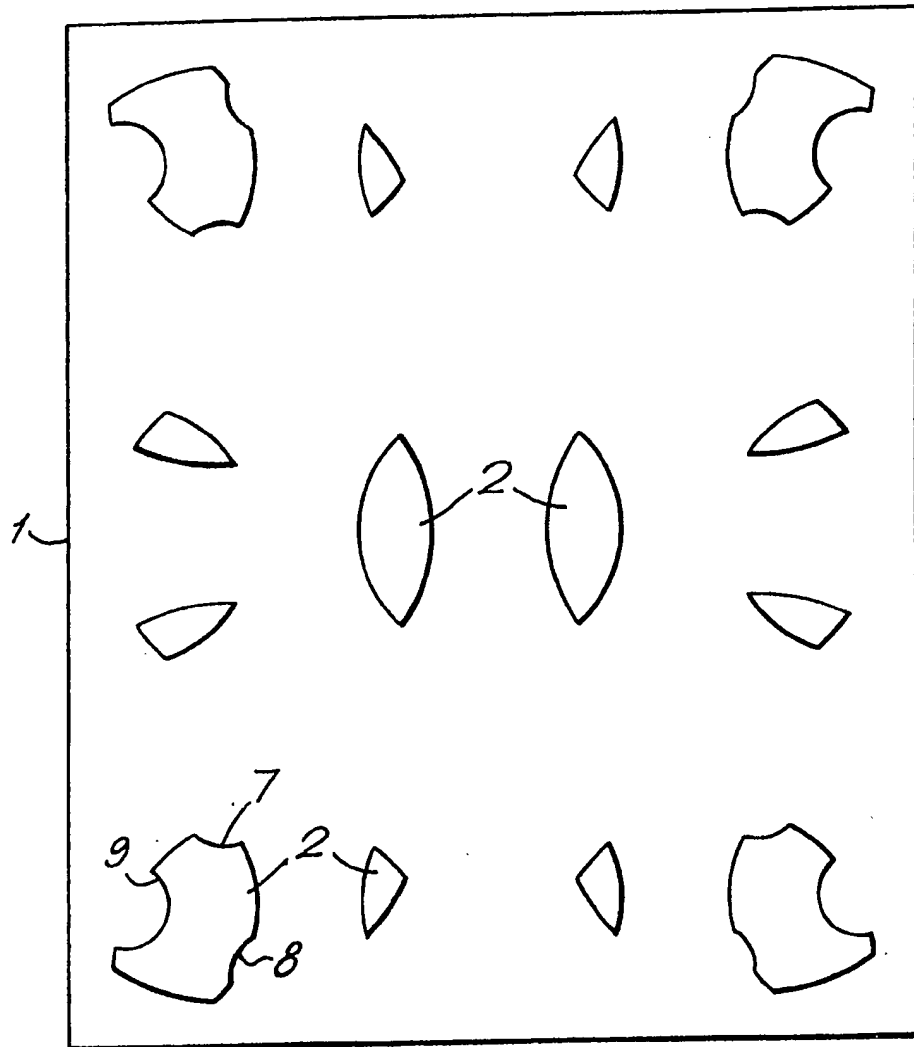


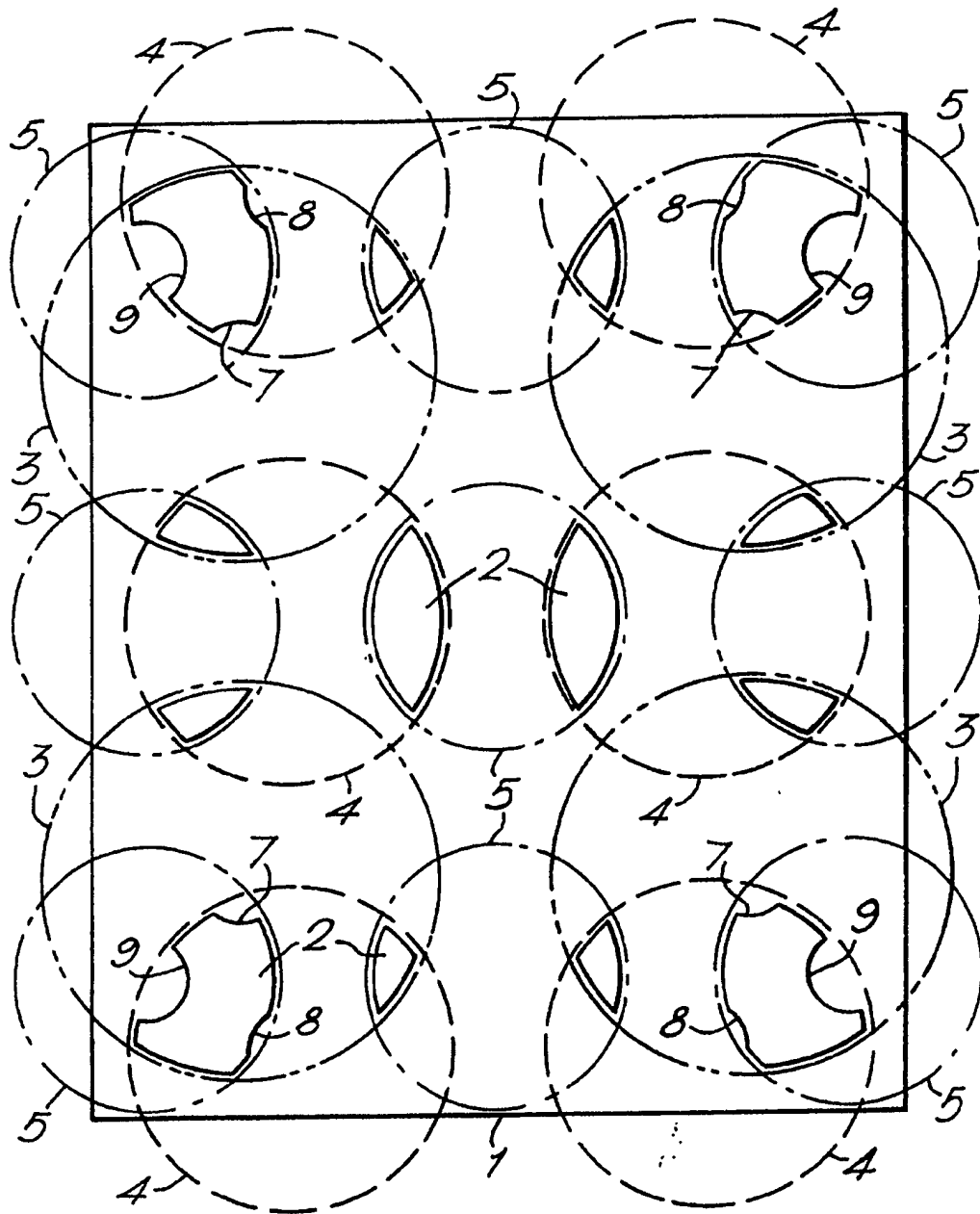
FIG.3.

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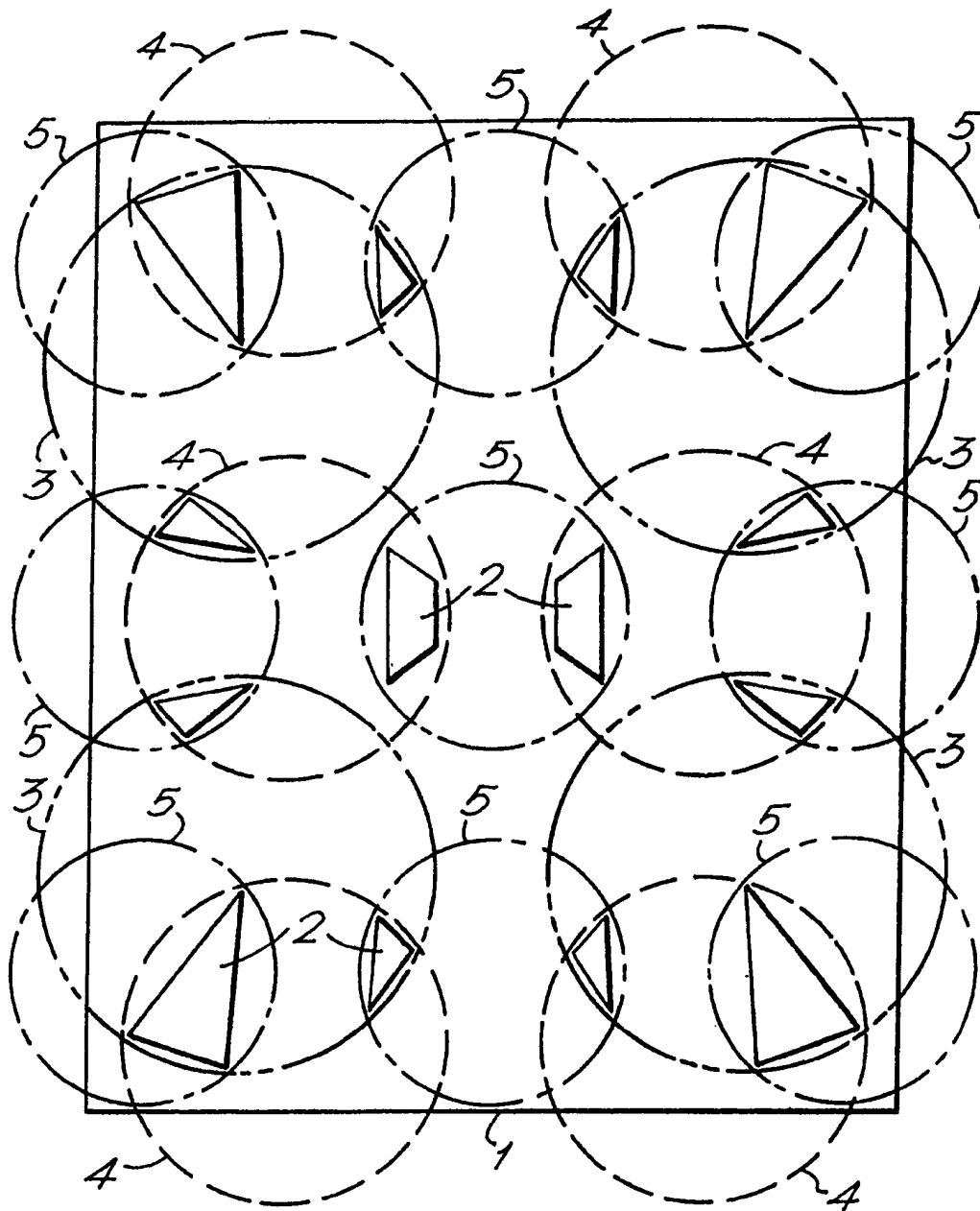
FIG.4.



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FIG.5.



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FIG.6.

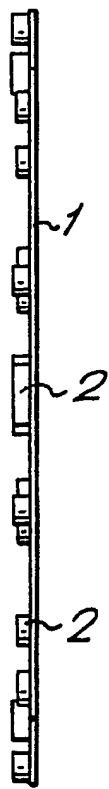
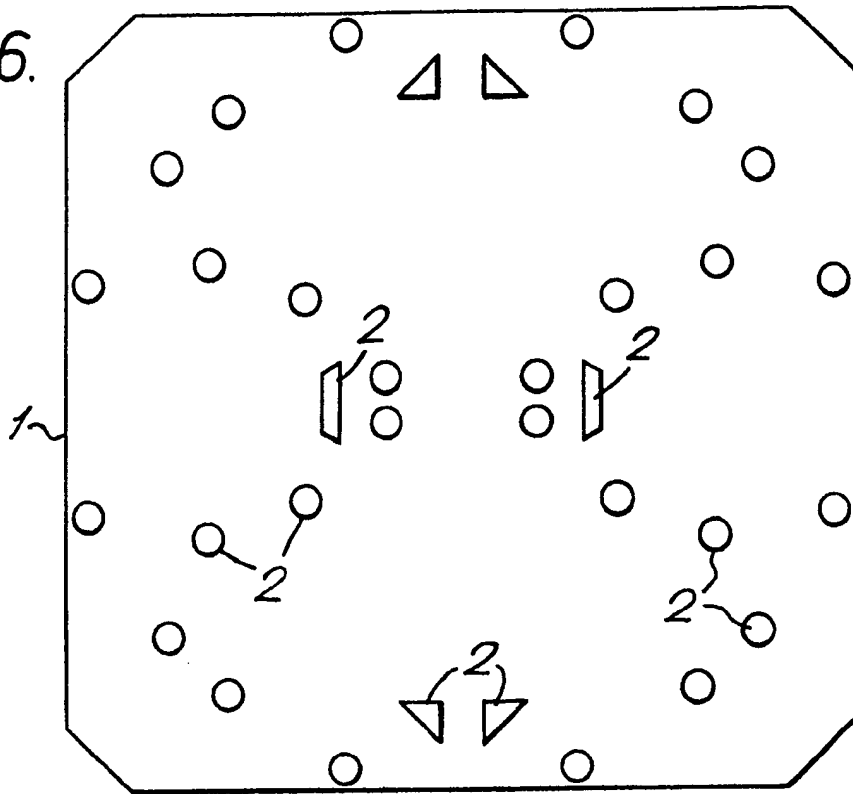


FIG.7.

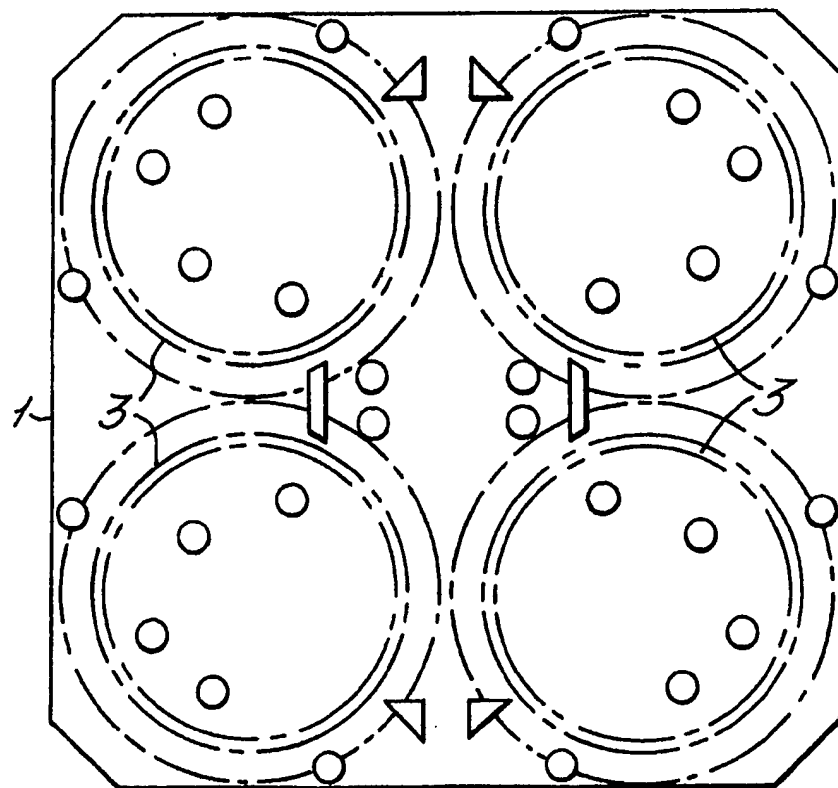
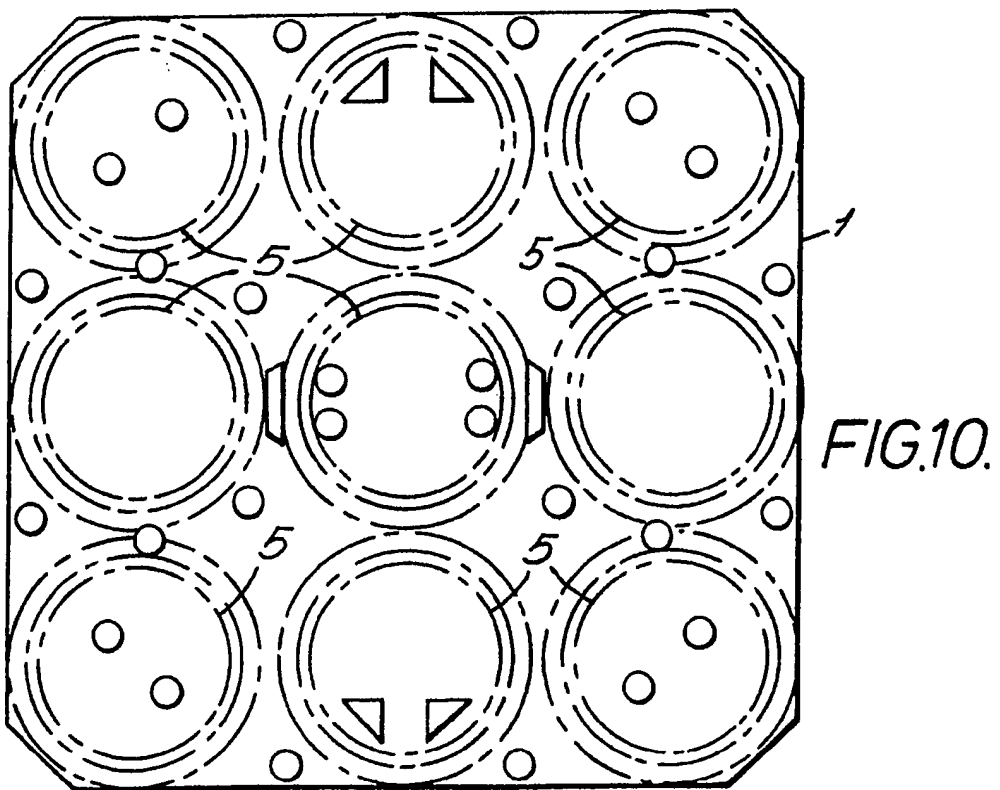
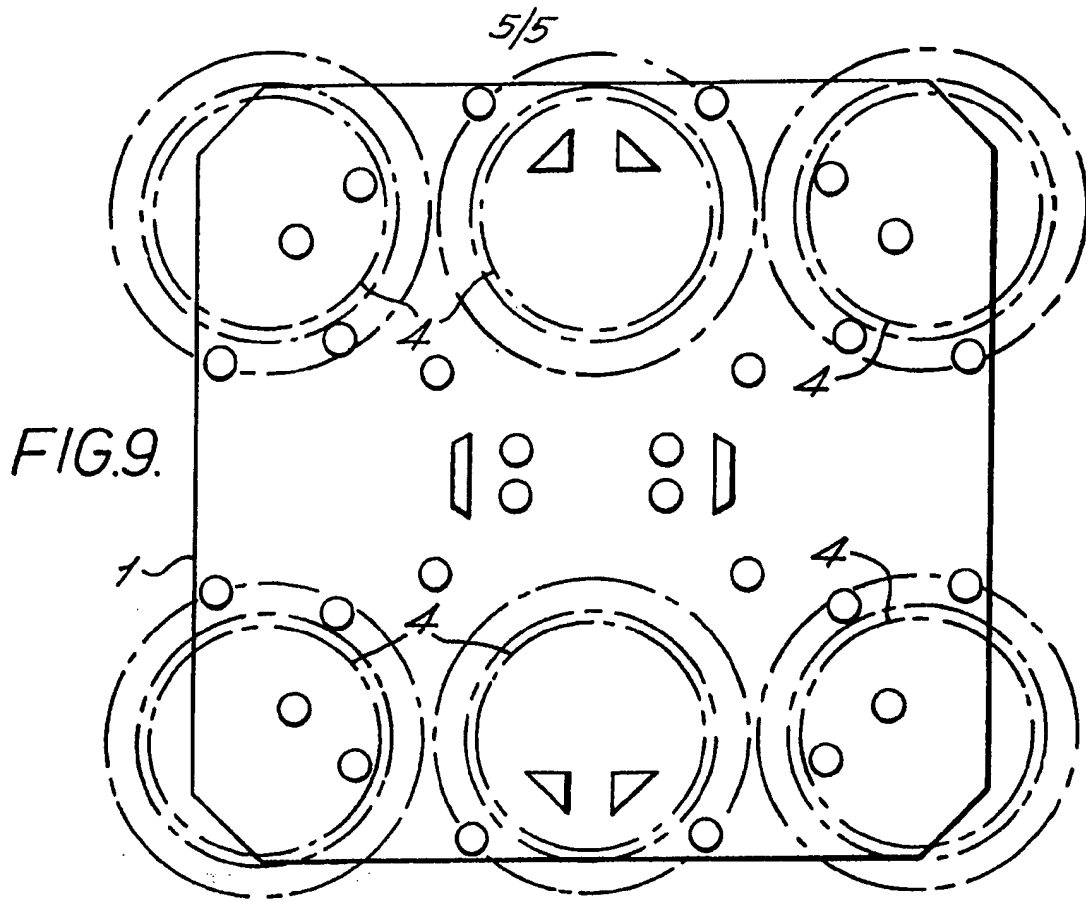


FIG.8.

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## SPECIFICATION

## Supporting containers

This invention relates to pallets or like devices, e.g. base boards or spacer boards, for supporting  
5 generally cylindrical containers, for example drums or casks.

It is common to stack generally cylindrical containers with the axes of the containers vertical. For example, a stack of beer containers may  
10 comprise four layers of containers separated by spacer boards and be about 17' high, containers in different layers being aligned vertically. It is desirable to be able to transport such stacks without the need for restacking the containers and  
15 stacks comprising three layers of containers are commonly transported by road. However, when stacks are moved, it is found that undesirable lateral movement of the the containers occurs relative to the spacer boards, base board or  
20 vehicle floor on which the containers are carried. After a journey a stack of containers may be found to be in a dangerous condition.

A possible solution to this problem is to provide a base board or spacer board with a restraining  
25 rim around its edge whereby the containers can be prevented from moving towards the edge of the board. Contact between the containers prevents movement towards the centre of the board. The lengths of the sides of the board are of course  
30 integral multiples of the diameter of the end of the container to be carried and such a device can be used to laterally support containers of only a single size. This means that where containers of a number of different sizes are in use, such as in the  
35 brewing industry, spacer boards of a number of different sizes must be provided.

According to the present invention there is provided a pallet or like device for supporting a  
40 plurality of generally cylindrical containers with their axes vertical, said device having a substantially flat underneath surface with no protrusions, and a substantially flat top surface with upstanding portions arranged to provide lateral restraint for the ends of either an array of a  
45 first number of generally cylindrical containers all of a first size or an array of a second number of generally cylindrical containers all of a second size.

Preferably the said upstanding portions are also  
50 arranged to provide lateral restraint for the ends of an array of a third number of generally cylindrical containers all of a third size.

The device preferably has a rectangular outline and need not define a completely covered area; it  
55 may, for example, have a body formed of a number of laths attached to a frame, the upstanding portions being attached to the laths. Preferably, however, the area within the outline of the body is completely covered.

60 The upstanding portions may be arranged to engage the ends of the containers at points on the circumference and may be in the form of a plurality of pins or blocks attached to the body of the device. Alternatively, the upstanding portions

65 may have elongate faces arranged to engage the ends of the containers around a part of the circumference, thus providing for a distribution of the forces on the upstanding portions in use.

The upstanding portions may be positioned to  
70 engage the outside of the ends of the containers although when the containers are provided with rims at their ends the upstanding portions may engage the inside of the rims.

The upstanding portions may be formed  
75 separately from the body of the device and subsequently affixed thereto. Preferably, however, the body and upstanding portions are formed integrally, such as by moulding. One embodiment is a unitary moulding of low density polyethylene or other suitable material which may be provided  
80 with reinforcing ribs.

In one form of the invention the said upstanding portions may be arranged positively to engage the  
85 ends of containers of predetermined dimensions when supported in their desired positions on the device. However, in order to accommodate variations in container sizes, e.g. ones from different makers, at least some of the upstanding portions may alternatively be located to engage  
90 the containers only if they move away from their desired positions.

Some embodiments of the invention will now be described by way of example and with  
95 reference to the accompanying drawings, in which:

Figure 1 is a plan view of a first embodiment of a device according to the invention;

Figure 2 is a side elevation of the device of Fig. 1;

100 Figure 3 is a detail sectional elevation showing a container carried on the device;

Figure 4 is a view similar to Fig. 1 illustrating how the upstanding portions engage the rims of a plurality of containers of three different sizes;

105 Figure 5 is a view similar to Figure 4 showing a second embodiment;

Figure 6 is a view similar to Fig. 1 showing a third embodiment;

Figure 7 is a side elevation of the device of Fig. 6; and

110 Figures 8 to 10 illustrate how the device of Fig. 6 is used to support three different sizes of container.

Referring to the drawings, each of the  
115 embodiments is in the form of a pallet or base board for carrying, alternatively, 4 barrels each of 36 gallons capacity, 6 kilderkins each of 18 gallons capacity or 9 firkins each of 9 gallons capacity. The device is formed of low density polyethylene or other suitable material by injection  
120 moulding and comprises a body 1 in the form of a flat board, and a plurality of upstanding portions 2 formed integrally on the otherwise flat top surface of the body. The underneath surface of the board  
125 is flat without any projections. As shown in Figs. 3 and 4, the upstanding portions are positioned and shaped to engage and provide lateral restraint for the ends of a plurality of generally cylindrical containers with their axes vertical. Specifically, the

apparatus can support the end rims 3 of four barrels, the end rims 4 of six kilderkins, or the end rims 5 of nine firkins, the ends of the containers being carried by the body 1 in each case. As seen in Fig. 4, the end rims of the containers of each particular size are spaced apart; however, the containers may in practice contact each other at their widest parts, i.e. at the rolling rings 6 (Fig. 3).

The upstanding portions 2 may be about  $\frac{3}{4}$ " high. They may comprise narrow upstanding walls, which provides an apparatus of low weight, but if it is desired to increase the strength of the upstanding portions the space bounded by the walls may be filled.

The upstanding portions 2 are shown with vertical edges. It is possible to provide chamfered or tapered edges which may facilitate the positioning of containers on the apparatus.

Figure 4 also illustrates a method of determining a suitable outline for the upstanding portions 2. The positions of the rims 3, 4 and 5 for three arrays of containers in contact at their widest points are drawn. The upstanding portions are positioned in the regions which fall within the rims of all three sizes of container (or within the rims of two sizes in the case of the two central upstanding portions). In the embodiment of Figs. 1 to 4 the upstanding portions are cut away at 7 to provide clearance for the filler cap of the barrels, at 8 for the filler cap of the kilderkins and at 9 for the filler cap of the firkins. This leads to the shapes shown in Fig. 1.

In the embodiment of Figs. 1 to 4, the upstanding portions contact each rim around a part of its circumference. However, contact only at points on the circumference is possible and this could be provided by upstanding pegs or pins, preferably positioned at the points of intersection of the rims shown in Fig. 3. Alternatively, upstanding portions shaped as shown in Fig. 5 could be provided. These shapes are relatively easy to fabricate if it is desired to form the upstanding portions separately from the base.

The embodiment of Figs. 6 to 10 differs from those of Figs. 1 to 4 and Fig. 5 in that the upstanding portions 2 are not located to positively engage the rims of containers of a predetermined size, but rather to provide lateral restraint for containers of varying sizes, as may be encountered for example in the case of nominally similar containers produced by different makers. This enables the form of the upstanding portions to be simplified as compared with the other embodiments, most of them now being in the form of cylindrical blocks. Figs. 8 to 10 show how this device receives the rims 3 of four barrels, the rims 4 of six kilderkins, and the rims 5 of nine

firkins respectively, and it will be noted that in each case only a small amount of outward lateral movement of any of the containers if possible before its bottom rim is restrained by one or more of the upstanding portions.

The provision of the device with a flat underneath surface free of projections means that two such devices may be used back to back as a spacer between two layers of containers, and also ensures that the underside of the device will not snag when it is being moved sideways, this being particularly important when a layer of containers and a device supporting them are being moved as a unit, e.g. by means of grippers on a fork-lift truck.

#### CLAIMS

1. A pallet or like device for supporting a plurality of generally cylindrical containers with their axes vertical, such device having a substantially flat underneath surface with no protrusions, and substantially flat top surface with upstanding portions arranged to provide lateral restraint for the ends of either an array of a first number of generally cylindrical containers all of a first size or an array of a second number of generally cylindrical containers all of a second size.

2. A device as claimed in claim 1, wherein the said upstanding portions are also arranged to provide lateral restraint for the ends of an array of a third number of generally cylindrical containers all of a third size.

3. A device as claimed in claim 1 or 2, wherein the said upstanding portions are located to engage the ends of containers of predetermined dimensions when the containers are in their desired positions on the device.

4. A device as claimed in claim 3, wherein the said upstanding portions have elongate faces arranged to engage the ends of the containers around a part of the circumference.

5. A device as claimed in claim 1 or 2, wherein the said upstanding portions are located to engage the ends of the said containers only when the containers are displaced laterally from their desired positions on the device.

6. A device as claimed in any of the preceding claims, wherein the said upstanding portions are arranged to restrain containers having rims at their ends, by engaging the inside of the rims.

7. A device as claimed in any of the preceding claims which is a one-piece plastics moulding.

8. A device as claimed in claim 1, substantially as hereinbefore described with reference to Figures 1 to 4, or Figure 5, or Figures 6 to 10 of the accompanying drawings.